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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/886,388 07/01/97 SANDHU

G MI22-713

EXAMINER

021567 MMC2/0315
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CRANE, G
ART UNIT PAPER NUMBER

2811
DATE MAILED:

03/15/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/886,388

Applicant(s)
Sandhu et al.

Examiner
Sara W. Crane

Group Art Unit
2811



☒ Responsive to communication(s) filed on Dec 21, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 44-45, 51-54, 56, 58-60, 62, 66-67 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 44-45, 51-54, 56, 58-60, 62, 66-67 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 44-45, 51-54, 56, 58-60, 62, and 66-67 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

~~See reasons of record in the paragraph spanning pages 3-4 of the Office action of 11/9/99.~~

As noted there, the claims cannot encompass photolithographic feature dimensions (or any other structure) that cannot be produced by one of ordinary skill at the time the specification is filed, because the specification cannot teach such processes. And, if one does not know what photolithographic processes will be invented in the future, one cannot know that the process disclosed by Applicant's specification could be used to produce feature dimensions smaller than such future photolithographic process. (Note that the first sentence of the Wolf reference, cited below, refers to a one micron resolution size, for optical lithography in 1986. The Morihara reference refers to 0.25 micron resolution size, only eight years later.) The process disclosed by Applicant produces a feature dimension that is smaller than *a particular* photolithographic process that is now in use. This is not sufficient disclosure to support claims that require knowledge of other photolithographic processes not known by one of ordinary skill at the time Applicant's disclosure was filed. This rejection is based on a "non-enablement," as well as "undue breadth."

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Furthermore, the specification does not even teach a process that produces feature dimensions less than all photolithographic processes known today. The process disclosed by the specification requires deposition of a single, continuous layer such as 36 in Applicant's figure 6 in a hole such as 35. The hole must be larger than twice the thickness of the continuous layer. The thickness of the hole must be such that the structure disclosed can be used as a mask for subsequent etching. Photolithographic processes such as x-ray lithography, can be used to produce holes that are far too small to be used in the process described with respect to Applicant's figure 6. And x-ray lithography can be used to form capacitor structures with features as recited in the claims.

Claims 44-45, 51-54, 56, 58-60, 62, and 66-67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Each of the independent claims recites the limitation "minimum photolithographic feature dimension" as a dimension that is to be derived by reference to a process of making. The claims attempt to encompass processes of making that are not yet known. The "minimum photolithographic feature dimension" is therefore indefinite because it varies with time, as technology develops.

Furthermore, the term "photolithographic process" is not clear, because one cannot determine what wavelength the photons are that are being used in the process.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 44, insofar as understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Morihara et al. in view of Wolf et al.

For definiteness, the "minimum photolithographic feature dimension" as recited in the claim is taken to be about 0.25 micron, as discussed with respect to Morihara figure 3. The device of Morihara figure 2 is two adjacent stacked capacitors with lower plates spaced less than 0.1 microns, as shown in figure 2(c). Polysilicon plugs were formed in the bottom insulator as shown in figure 2(a). The process by which these plugs were formed is not disclosed. It would have been obvious to form the polysilicon plugs by using one of the advanced lithography processes described in the Wolf textbook (electron beam lithography, x-ray lithography, ion beam lithography) in order to form devices that are smaller and closer together, as desired by Morihara et al.

Claims 44-45, 51-54, 56, 58-60, 62, and 66-67, insofar as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Morihara et al. and Wolf.

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The claims are directed to a capacitor plate having the well-known stem and fin structure as taught by for example layers 300 in Lee figure 2B. The dimensions of the capacitor plate are defined by reference to a process. These are therefore product-by-process claims, interpreted as drawn to the structure produced by the recited process. The structure produced by the recited process would presumably have small dimensions, at least for the stem, and for the spacing between adjacent capacitor plates. It would have been obvious to form the capacitor plate of the prior art of Lee figure 2B with dimensions as small as could be obtained by known processes as set forth by Wolf, because, as discussed by Morihara et al., small capacitors allow for more devices to be formed in a single memory chip.

Conclusion

Applicant's arguments filed with respect to the pending claims have been fully considered but they are not persuasive. Applicant notes that the claims do encompass unknown processes. Applicant argues that these processes will have non-zero minimum lithographic feature size. Perhaps this is so, but interpretation of the claim language requires knowledge of what the feature size is, and not merely knowledge that the feature size is non-zero. Applicant notes that the terminology "minimum feature size" is used in other patents. Examiner is aware of no issued claim where, as here, a difference in an *unspecified* "feature size" provides the *only* difference between the claimed structure and the prior art structure. The feature size is the sole point of novelty relied upon by Applicant for patentability here. And the feature size claimed is intended

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by the Applicant to become smaller as technology improves. This is forbidden by the first paragraph of 35 U.S.C. 112. Note that interpretation of claim language is made on a case-by-case basis, and the "subject matter as a whole" encompassed by the claim language is the basis of claim interpretation. The use of a particular phrase in previously-issued claims does not mean that that any subsequently-submitted claims using the same phrase are necessarily in compliance with 35 U.S.C. 112. Also, previously-issued claims may have even been issued in error. The PTO is not bound by any principle of "stare decisis," for example, which would require mindlessly following previous incorrect conclusions.

Claims drawn to structures not specifically taught in the specification, such as "a computer," for example, are construed based on the types of computers known at the time the specification containing such a claim is filed. If an Applicant stated an intention that such terminology is intended to encompass computers not presently known or not presently knowable, then such claim language would have undue breadth, and would be subject to a rejection under 35 U.S.C. 112, first paragraph. See i.e. MPEP 2164.08. Such claim language could also fall under 35 U.S.C., second paragraph. For an analogous example, use of trademark terminology, such as "Teflon," is forbidden in claim language, because the owner of the trademark can change its meaning at any time. PTO policy has always been to require removal of trademark terminology from claims, and to replace the terminology by its meaning at the time the specification is filed. If Applicant were to replace its claim language defining the feature size by a particular dimension,

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for example some number of microns, then the claim language would probably no longer be indefinite.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, Ph.D., whose telephone number is (703) 308-4894.

The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist, whose telephone number is (703) 308-0956.



Sara W. Crane
Examiner
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